Remarks

The examiner's reconsideration of the application is urged in view of the amendments above and comments which follow.

Turning first to the rejection of claims 6 and 14 – 18 under 35 U.S.C. §112 as found in numbered section 4 spanning pages 2 and 3 of the office action, the claims have been amended above to deal with the matters raised by the examiner. It is believed that the claims are now in order, and in acceptable form. The amendments above are only in relation to the §112 rejection. Claim 6 refers to machine readable information, the term "a plate" in claim 12 has been amended to "an AST plate", the references in claims 13 and 15 to a disk have been replaced by references to the located device, quote marks have been removed from "expert system" in claim 14, "such disk" has been deleted from claim 18 and the penultimate line of that claim amended to indicate that the actual reading direction is brought into line with the actual orientation of the character code on the device.

Turning to the rejections under 35 USC §103(a) in sections 7 – 11, the applicants first do not agree that claims 1-3, 5-7 and 11 would have been obvious in the light of Berndt, US 5595708. Reconsideration is requested.

Berndt shows an analysis system for detecting the presence of bacterial growth in a number of sample vials arranged in a fixed array. The vials are individually inspected by a test station which is moveable to each vial in turn. Each vial contains a sensor which, when stimulated with radiation from the testing station, emits light at an intensity related to the bacterial activity in the sample. Adjacent to the sensor is a bar code which cannot can also be read by the station. The bar code is intended to provide information on the vial, sample or patient.

Wrong see Abstract

Contrary to the comments on page 4 of the office action, however, neither the sensor nor the vial contains antibiotic related to any test to be carried out. The bar code does not therefore

carry any information relating to an antibiotic carried by the sensor, as the sensor carries no such antibiotic.

The systems shown in Berndt are blood culture systems for measuring the growth of organisms present in liquid blood samples. The susceptibility of any such organism to an antibiotic cannot be measured by Berndt since the system cannot be used with solid culture plates and cannot measure areas of inhibited growth on such plates.

not claimed

Thus it is submitted that the teachings of Berndt would not be applied to an AST system. Even if they would, to yield an arrangement which uses sample markings, such markings would only be used to tie a particular sample to a particular source, as suggested by the Examiner, not to identify the antibiotics carried by the AST carrier devices.

The machine readable information used by the system of Berndt takes the form of bar codes. Insofar as these could be thought of as providing orientation means, such means would only be incorporated into the bar codes, and would not therefore be means other than the machine readable information. Thus, the bar codes do not provide orientation means which is other than the machine readable information, or which is separate from such information (as claimed in claims 2 and 3 respectively).

The Examiner suggests that a reference mark used in Berndt (Reference 32-332) constitutes separate "orientation means". However, the mark in question takes the form of circle which is concentric with the bar code, and can therefore contain no orientation information on the bar codes. The circle, instead, is used to ensure that the testing station at the correct X-Y co-ordinates for the vial in question. The Examiner also suggests that one of the bar codes (234) shown in figure of Berndt could act as the orientation means. However, this bar code is used on the rack for the vials to identify the position of a vial on the tray, and is not in the same component as the code (212). The code (234) cannot therefore act as orientation means for the code (212).

Angular orientation
Linear barcode
Col 9, ll 50-55

Accordingly, claims 2 and 3 are submitted to be allowable over Berndt, regardless of the validity of claim 1. Similarly, since the code (234) cannot act as orientation means for the sensor code, claims 6 is also allowable in its own right, as well as by virtue of its dependency from claim 1.

With regard to claim 5, it is pointed out that a vial is clearly not a functional equivalent of an AST disk; one is the container for a liquid sample, while the other is a holder for a substance to interact with bacteria on a solid sample. There is therefore no teaching in Berndt that would lead the skilled addressee to replace a sample vial with an AST carrier. Indeed Berndt would teach away from making such an alteration since the AST carrier is clearly incapable of holding a sample.

In the Action the Examiner goes on to reject claims 4, 8-10 and 18 on the basis of Berndt and Wevelsiep, US 440339. However, Wevelsiep also does not show an AST carrier device. Thus, even if the teachings of these two references were to be combined, a carrier device having the features of claim 1, and hence also claims 6 and 8-10, would not result.

Turning to claim 18, it is pointed out that Berndt simply analyses blood samples in vials in order to determine the presence (or otherwise) of bacterial growth. To that end, the Berndt system measures the amount of light emitted by a sensor which emits light of an intensity related to bacterial activity. The Berndt system does not identify or interpret any region of visibly altered micro-organism growth as required by claim 18, since the system is dependent solely on the output from the sensor to determine the amount of bacterial growth. Bacterial growth will not affect the image of the sample in the region of the sensor, and the system cannot therefore detect, let alone interpret, any region of visibly altered micro-organism growth.

Bacterial growth

It is thus submitted that claim 18 is both novel and non-obvious in view of both Berndt and Wevelsiep.

The Examiner then rejects claims 12, 13, and 15 in the light of Graessle, US 5573950 and Tsuchiya, US 5134272. Graessle shows an automated image apparatus for imaging a large number of culture plates which are fed to an imaging station via a cassette. Each plate does have a code for identifying individual samples, but there is no suggestion that such a code could identify an antibiotic. Moreover, there is no apparent need for any sort of orientation markings since all of the culture plates are stacked into a rack in a predetermined way and simply moved to the required position, relative to the imaging device, by means of a stepping motor. Thus all of the plates have the same orientation, and Graessle does not show apparatus which has any information processing means for identifying orientation markings on a plate and rotating the perceived image, as required by claim 12. There is thus no need to combine the teachings of Graessle and Tsuchiya since orientation markings are not required for the plates of Graessle.

It is pointed out that, even if such teachings were to be combined, the resulting device would not have all the features of claim 13: Graessle shows a device for counting the number of colonies that have grown on a thin film plate. The patent only describes apparatus and a method for counting the colonies, not for measuring their size. Thus a combination of teachings of Graessle and Tsuchiya would not yield an image analysis system which determines a visible characteristic of any zone of inhibited growth.

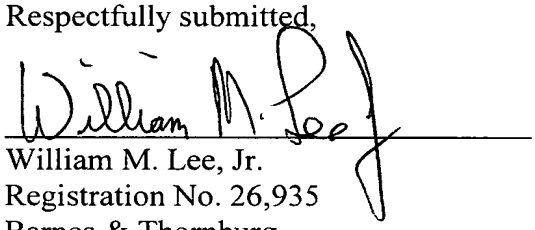
It is also pointed out that the Examiner's comments on claim 16 (on page 9 of the Action) are clearly incorrect. The Examiner appears to have assumed that there are some links between the location of the central co-ordinates of a region of bar code as discussed in Tsuchiya, and the determination of the diameter of a region of inhibited growth. However, Tsuchiya shows an arrangement in which the images of bar codes are filtered so that regions beyond the bar codes are discarded. Thus, even if the system were to be used in susceptibility testing apparatus, it would only be able analyze a bar code, not any region of inhibited growth around the bar code.

It is therefore submitted that the claims of this application are both novel and non-obvious in view of the prior art cited by the Examiner. Reconsideration and allowance of the application are solicited.

As this response is being submitted during the fourth month following the examiner's office action, an appropriate petition for extension of time is also submitted herewith.

April 22, 2003

Respectfully submitted,



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